In the claims:

Claims 1-7 cancelled.

8. (currently amended) A method for correcting a sensor system selected from the group consisting of an angle-measuring sensor system, a distance-measuring sensor system, and an angle-and a distance-measuring sensor system comprising the steps of

evaluating sinusoidal and cosinusoidal measurement signals (x_i y_i) obtained by scanning a moved measurement object in a magnetic field;

correcting errors of the measurement signals (x_i y_i) selected from the group consisting of angle errors, phase errors, and angle and phase errors

providing for the correcting the sensor system a compensation process and a subsequent correction process;

in the compensation process, providing offset values (x_o, y_0) from a specified number (N of j=1...N) of pairs of measured values (x_i, y_i) obtained by rotating a magnetic field, for the sinusoidal and cosinusoidal measurement signals (x_i y_i) and correction parameters (m_1, m_2) by applying a least square of errors method and solving a linear system of equations;

determining a corrected pair of measured values (x_i' y_i') from each pair of the measured values (x_i y_i) in the correction process,

whereby determining the corrected pair of the measured values (x_i' y_i') in the correction process based on the relationship

$$x_i' = x_i - x_0 \text{ and } y_i' = m_1 \cdot x_i' + m_2 (y_i - y_0),$$

whereby determining the pair of measured values (x_i y_i) in the compensation process located on ellipses and satisfying the following equation:

$$f(x,y) = w_1 \cdot x^2 + 2 \cdot w_2 \cdot x \cdot y + w_3 \cdot y^2 + 2 \cdot w_4 \cdot x + 2 \cdot w_5 \cdot y \pm 1,$$

whereby determining parameters of elipses ($w_1 \ldots w_5$) using the least square of errors (g) method, with

$$g = \sum_{i=1}^{N} f(x_i, y_i)^2 = \min; \text{ and}$$

determining an angle (α) to be measured from particular corrected pairs of the measured values (x_i' y_i') using an algorithm.

Claim 9 cancelled.

10. (previously presented) A method as defined in claim 8; and further comprising determining an angle (α) to be measured in the correction process based on the relationship $\alpha = arc(x' + i \cdot y')$.

11. (previously presented) A method as defined in claim 8; and further comprising determining a derivative of the square of errors (g) with respect to the parameters of the ellipse ($w_1 \ldots w_5$), and setting a

particular derivative equal to zero, to determine a minimum, and using the particular derivatives to create a linear system of equations, so that, using a suitable elimination process, the system of equations is solved for required parameters of the ellipse ($w_1 \ldots w_5$) and the offset values (x_0, y_0) and the correction parameters (m_1, m_2) are determined.

Claims 12-14 cancelled.

15. (previously presented) A method as defined in claim 8, wherein the linear equation system corresponds to the equation

$$\begin{bmatrix} sx4 & 2\cdot sx3y & sx2y2 & 2\cdot sx3 & 2\cdot sx2y \\ sx3y & 2\cdot sx2y2 & sxy3 & 2\cdot sx2y & 2\cdot sxy2 \\ sx2y2 & 2\cdot sxy3 & sy4 & 2\cdot sxy2 & 2\cdot sy3 \\ sx3 & 2\cdot sx2y & sxy2 & 2\cdot sx2 & 2\cdot sxy \\ sx2y & 2\cdot sxy3 & sy3 & 2\cdot sxy & 2\cdot sy2 \end{bmatrix} \cdot \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ w_4 \\ w_5 \end{bmatrix} = \begin{bmatrix} -sx2 \\ -sxy \\ -sy2 \\ -sx \\ -sy \end{bmatrix}$$

and wherein

$$sx=\sum_{i=1}^{N} x_i \quad sy=\sum_{i=1}^{N} y_i \quad sxy=\sum_{i=1}^{N} x_i\cdot y_i$$

$$sx2=\sum_{i=1}^{N} x_i^2 \quad sy2=\sum_{i=1}^{N} y_i^2 \quad sx2y=\sum_{i=1}^{N} x_i^2\cdot y_i$$

$$sx3=\sum_{i=1}^{N} x_i^3 \quad sy3=\sum_{i=1}^{N} y_i^3 \quad sxy2=\sum_{i=1}^{N} x_i\cdot y_i^2$$

$$sx4=\sum_{i=1}^{N} x_i^4 \quad sy4=\sum_{i=1}^{N} y_i^4 \quad sxy3=\sum_{i=1}^{N} x_i\cdot y_i^3$$

$$sx3y=\sum_{i=1}^{N} x_i^3\cdot y_i$$

is, and with the determined ellipse parameters

$w_1 \ldots w_5$

$$x_0 = \frac{w_2 \cdot w_4 - w_1 \cdot w_5}{w_1 \cdot w_3 - w_2^2}$$

and

$$y_0 = \frac{w_2 \cdot w_4 - w_1 \cdot w_5}{w_1 \cdot w_3 - w_2^2}.$$

via the intermediate values

$$v = \sqrt{\frac{w_1 + w_3 - r}{w_1 + w_3 + r}}$$

with

$$r = \sqrt{(w_1 - w_3)^2 + 4 \cdot w_2^2}$$

and

$$m_1 = \frac{w_2}{r} \cdot \left(\frac{1}{v} - v\right)$$

$$m_2 = \frac{1}{2} \cdot \left(\left(\frac{1}{v} + v\right) - \left(\frac{1}{v} - v\right) \frac{w_1 - w_3}{r}\right)$$

are calculated